HISTORY OF SOURCE WATER PROTECTION

Wellhead Protection - 1986

Source Water Assessment - 1996

Source Water Protection – Present Day

1986 Amendments to SDWA

- Several years effort by Congress to pass amendments
- 1st comprehensive set of amendments since SDWA originally enacted
- Established the following:
  - New primary drinking water standards
  - Expanded contaminant list from 23 to 83
  - Required EPA to publish “priority list”
  - Established variance and exemption protocol
  - Established two new groundwater programs
- Signed into law 6/19/1986 by President Reagan

Two New Groundwater Programs

- **Wellhead Protection - Required states develop program to prevent contamination of groundwater supplying public water systems (Michigan made program voluntary for PWSSs)**

- **Critical Aquifer Protection – established a grant program to assist state and local units of government in protecting "sole source aquifers" (Michigan chose to not participate)**

At time of Enactment

- **EPA estimated there were ~156,600 public water supply systems**
  - **142,400 of the PWSSs relied on ground water**
  - **14,200 relied on surface water**

- **EPA estimated there were ~51,700 community water systems**
  - **40,000 relied on ground water**
  - **11,700 relied on surface water**

The "fallacy" of these statistics?

Majority of Michigan citizens served by relatively small number of surface water systems

Elements of Wellhead Protection

- Roles and Duties
  State agency and local (utility) agency
- Delineation of wellhead protection area
  "…surface and subsurface supplying water well or wellfield…"
- Contaminant source inventory
- Management approaches for WHPA
  Control measures to protect PWSS
- Contingency planning (required by SDWA)
- New Wells (Requirement to "plan ahead")
- Public participation (Community involvement)

1996 Amendments to SDWA

- **Emphasis on water system management and preventing contamination**
- **Placed focus on states to develop programs related to:**
  - **Source Water Protection - required states assess the "susceptibility" of PWSSs to contamination**
  - **Capacity Development – emphasis on managerial and financial aspects**
  - **Operator Certification – ensure knowledge and skill of PWSS operators**

Source Water Protection

- Aim to reduce treatment cost and risks to public health by protecting source water from contamination
- Players in Source Water Protection

  Environmental Protection Agency
  Water Utilities
  Local communities / units of government
  States
  Businesses
  Citizens
- Integration of source water protection efforts to ensure drinking water is protected

Federal Role in SWP

- EPA worked to encourage partnerships
  - State agencies
  - Tribal agencies
  - Citizen groups
  - Non-governmental agencies

    American Water Works Associations
    National Rural Water Association
    Ground Water Foundation
- Identified programs/tools for integration
  - Clean Water Act and other EPA programs
  - Agricultural programs

    Farm•A•Syst / Home•A•Syst
    Conservation Easements

State and Local Governments

- Variety of state programs aid "source water protection" activities
  - Wellhead protection programs
  - Ground water management programs
  - Watershed management programs
- Similarly, local programs and efforts may contribute to efforts
  - Local zoning to manage hazardous materials
  - Zoning to protect land in "source water areas"
  - Local management strategies Integration with land acquisition and/or conservation easements.

Source Water Assessments

- States required to submit program to EPA by February of 1997
- Program Elements
  - Delineate boundary of areas providing source water to PWSSs
  - Identify regulated and certain unregulated contaminants in delineated areas
  - Determine Susceptibility of PWSSs
- Michigan program approved Oct, 1999

Source Water Assessments cont'd

- **Two year time frame for completion with option for 18 month extension**
- **Directive to avoid duplication of efforts**
  - **Use sanitary survey process**
  - **Integrate process with state WHPP, pesticide management plans, watershed initiatives, etc.**
- **Alternative monitoring requirements and monitoring relief originally tied to source water assessment results**

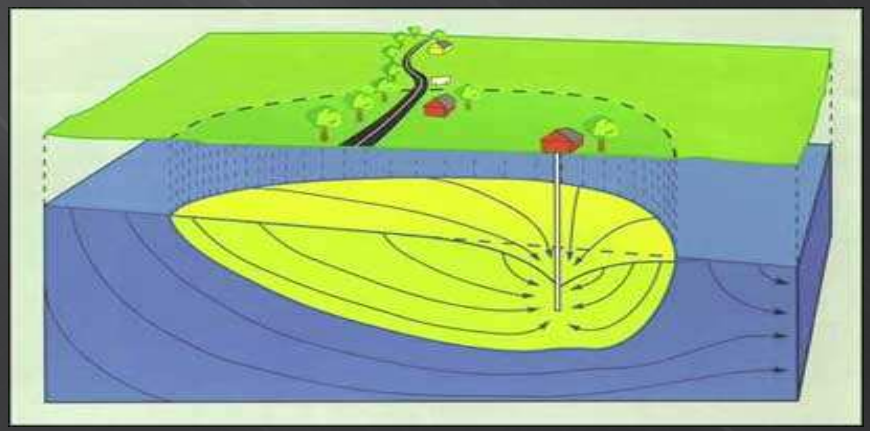
What is Source Water?

- Defined as untreated water from streams, rivers, lakes or underground aquifers
- Water used to provide public drinking water (and to supply private wells)

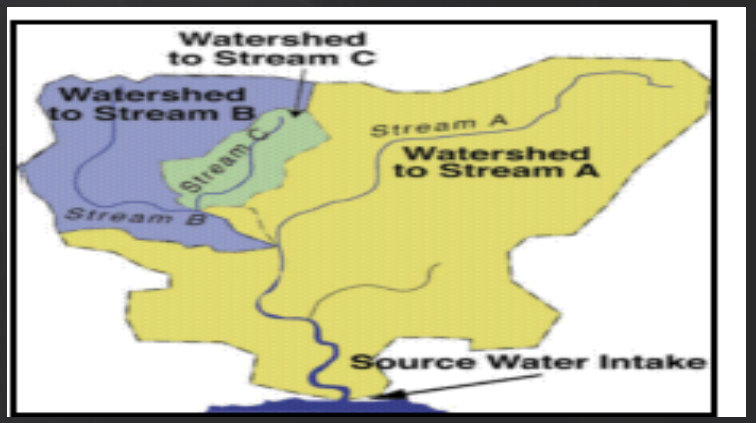
Delineate Boundary

States used various means of delineation

Contributing Area



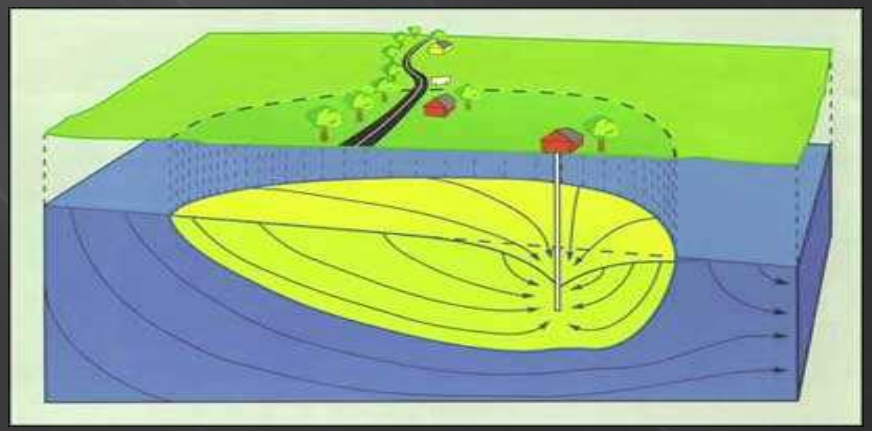
Watershed Area

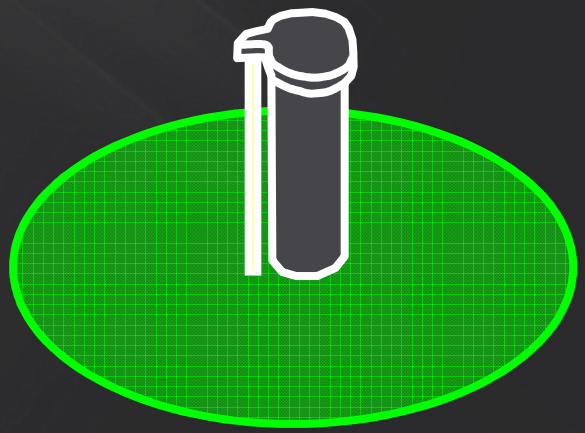


Michigan "Delineate" Approach

- **Situation unique to Michigan**
  - **~1,300 community water supplies**
  - **~11,000 non-community supplies**
- **Bulk of non-community systems in Region V reside in two states**

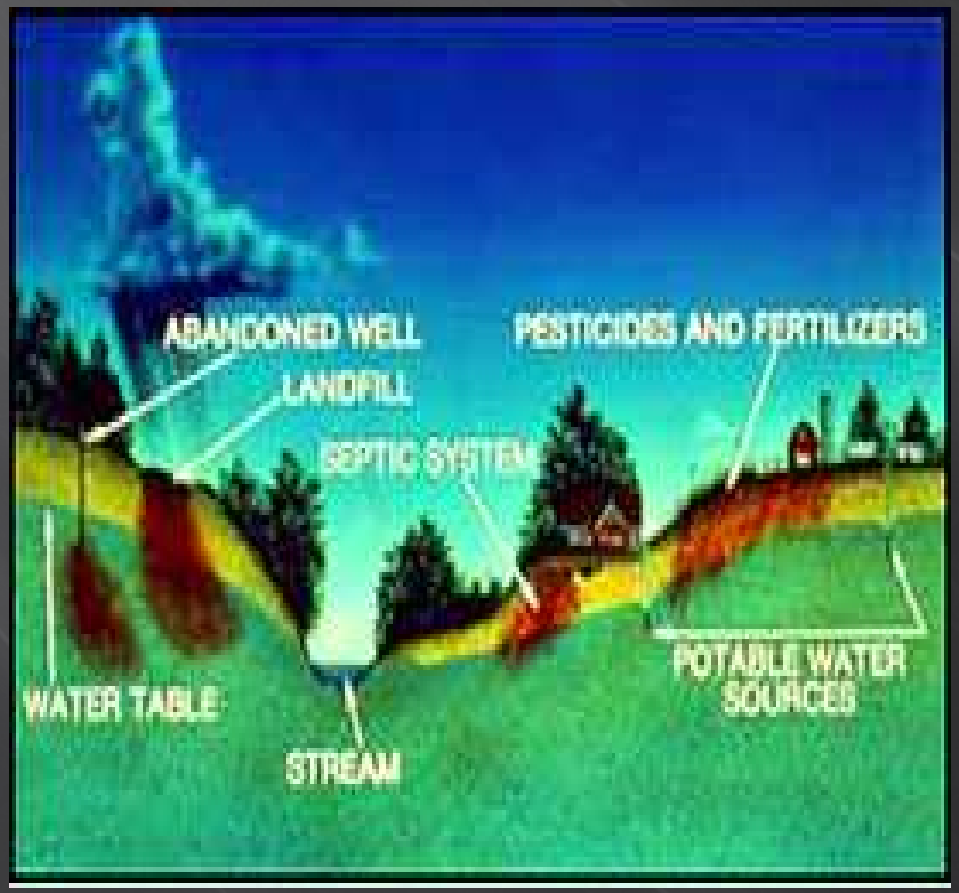
WHPA Approach vs Assessment Approach





Identify

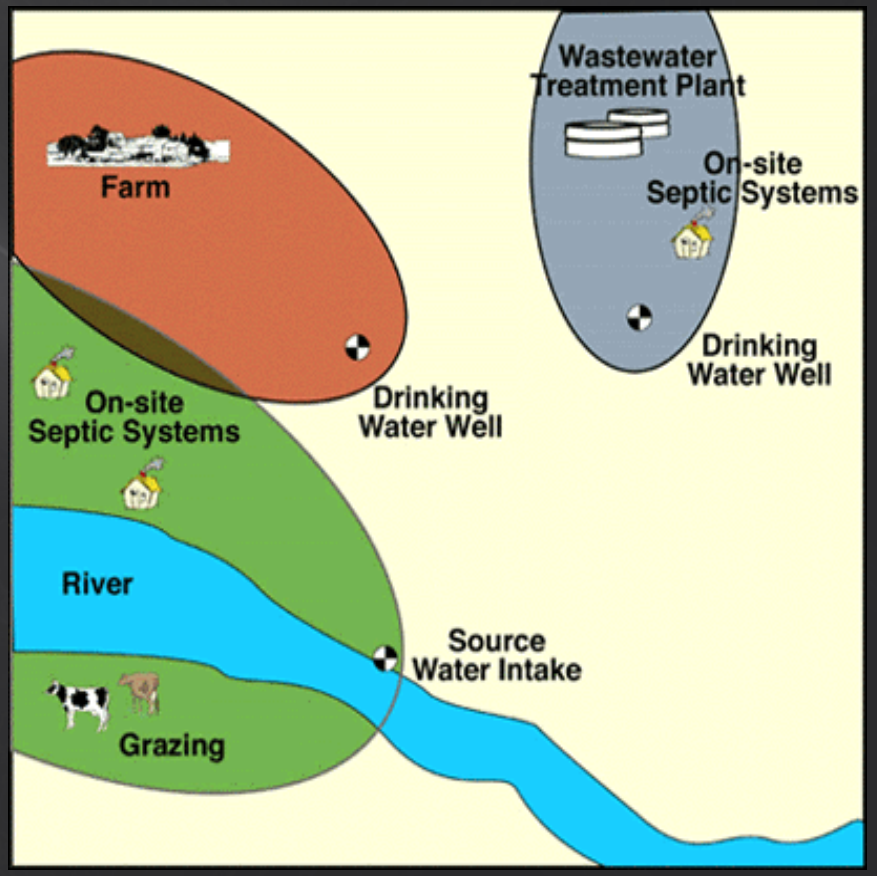
Identify risks to PWSS



Susceptibility

Assign ranking:

Low ⟶ High



Source Water Assessments

- Michigan completed source water assessments from 1998 to 2003
- Period of completion coincident with sanitary survey process
  - Three year rotation on Type Is
  - Five year rotation on Type IIs
- Consisted of scoring process and "susceptibility" rating
- Basis of scoring process - isolation distances
- Reports created and made available to systems

Michigan's Source Water Protection – Present Day

Why are we here today?

Reality

Water utilities themselves play a critical role in protecting source water

Why

Because protective actions must be tailored to local situations

Michigan's Source Water Protection – Present Day cont'd

Why are we here today?

Source Water Assessment Updates

Michigan one of few states in Region V to not update SWAs

New Emphasis

Emphasis on "wellhead protection area" as opposed to isolation distances

SWA New Approach

- Area contributing water to PWSS wells has been defined using MGMT
  - Emphasis on identifying potential sources of contamination that lie within the wellhead protection area
  - Determine how SWA and susceptibility rating might have changed
- Use the results to better manage and reduce potential sources of contamination to PWSS wells

Role of Attendees

- Businesses and individuals can take actions to protect source waters
  - Institute management practices to reduce the use of harmful chemicals
  - Ensure wastes do not discharge into ground or surface water
  - Reduce the use of pesticides
  - Ensure on-site waste disposal systems are properly maintained
- **Discuss strategies to help PWSSs use the information from the assessments**